DOCUMENT RESUME

ED 410 982 IR 056 480

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TITLE Shrinking Budgets and Changing Formats: Journal Use Studies and Comparisons of Journal Indexing Databases.
PUB DATE 1997-05-00
NOTE 23p.; Paper presented at the Annual Meeting of the Nebraska Library Association (Crete, NE, May 23, 1997).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Academic Libraries; Access to Information; Budgeting; Electronic Journals; Full Text Databases; Higher Education; Information Dissemination; *Library Circulation; Library Expenditures; Library Funding; *Library Materials; *Periodicals; Scholarly Journals; Serials; Technological Advancement; *Use Studies; *User Needs (Information)
IDENTIFIERS *University of Nebraska Lincoln

ABSTRACT

As serials budgets shrink, serial prices increase, and journal titles continue to proliferate, libraries are challenged to better assess and fulfill users' information needs. Changing formats complicate the situation while better indexing and abstracting services make patrons more aware of the vast literature available. This study examines several ways to assess users' needs at the University of Nebraska-Lincoln libraries. In the journal use study, usage was surveyed using three methods: circulation counts of found volumes, reshelving counts of current periodicals, and citation analysis. Although most correlations among journal use measures were significant, they were not high enough in most cases to rely upon any one as the sole measure of journal popularity with confidence. Journal usage measures can provide important information to supplement, confirm, or cause questioning of more subjective judgments of the value of a journal subscription to users. Journal usage measures require considerable staff time and commitment and need to be done periodically as user needs change over time. A comparison of journal coverage and journal availability for several databases in agriculture and medicine is also discussed. Knowing the popularity of individual journals and having an idea of the titles covered by indexes enables a librarian to determine which method of access to use in this time of shrinking budgets and changing formats. (Author/SWC)

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# SHRINKING BUDGETS AND CHANGING FORMATS: JOURNAL USE STUDIES AND COMPARISONS OF JOURNAL INDEXING DATABASES

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## ABSTRACT

As serials budgets shrink, serial prices increase, and journal titles continue to proliferate, libraries are challenged to better assess and fulfill users' information needs. Changing formats complicate the situation while better indexing and abstracting services make patrons more aware of the vast literature available. In this study, we examined several ways to assess users' needs at the UNL libraries. A comparison of journal coverage and journal availability for several databases in agriculture and medicine was also performed. Use of this information in planning library services will be discussed.

## INTRODUCTION

The major task of any library is to provide access to a collection of library materials that meets the needs of the users. To make the task more complicated, users' needs are often hard to define and are continually changing, informational formats may change, and resources are limited. For academic and research libraries, the materials budget is almost always dominated by serials. The proliferation of academic journals and rising costs have forced many libraries to be more selective in their journal subscriptions and to look for ways to more

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closely match the collection to users' needs. This study came out of a need to understand journal usage before a scheduled serials cancellation at the University of Nebraska-Lincoln Libraries (UNL). Journal use studies in three fields, veterinary science, business, and music, reveal the frequency and type of use of journals in these fields. A comparison of journal indexing databases in the life sciences gives information about which of the journals are indexed in various on-line indexes and which are owned by UNL.

A list of four questions guided the research: What journals are users aware of, and how do they become aware of them? What journal titles do patrons actually use? How can librarians know this? And finally, what would be the best way to access the widest range of periodicals?

## JOURNAL USAGE

### Background

Patrons are introduced to journals in several ways: articles are cited in classes, professors or colleagues publish in a journal, or faculty may subscribe to a journal, or they may recommend articles to one another. Users can browse periodicals on the shelves or they may use an electronic or print index or abstracting service.

It is possible to indirectly determine user needs by looking at what material they use (Swigger and Wilkes, 1991). This method is not perfect since people can only use what they are aware of and what is available or accessible. There is also some discussion about what constitutes a "use". Journals can be used casually or in depth. Some journals get a great deal of use when current. Others may get more retrospective use and use of back issues is dependent to a great extent on

coverage in available indexing and abstracting services. Studies have shown that researchers in the humanities tend to use older material than scientists and that scientists have a higher use of journals rather than books. Faculty members also use journals and other library materials in different ways than either graduate students or undergraduates (Magrill and St. Clair, 1990).

Measures of journal use generally fall into several classes: circulation counts, reshelving counts, user surveys, and citation analysis (Broadus,1985; Schmidt, *et al.*, 1994). Circulation counts are easy to obtain from electronic records. However, not all libraries allow periodicals to be checked out or they may restrict circulation to materials older than a certain date. Even when they can be checked out, most use of bound periodicals will be within the library. When a journal is checked out, it is likely that the patron is particularly interested in one or more articles. Reshelving counts, on the other hand, fail to distinguish between a casual and a more extensive use. There is also no way to determine whether a journal has been used more than once before being reshelved. Reshelving counts also take a fair amount of staff time and require a commitment from the staff for reliable information to be collected. Other complications to the accurate measurement of journal use include the absence of material sent to the bindery and patron reshelving of journals, especially if they are browsing. Despite these qualifiers, reshelving may be one of the most common ways to estimate in-library journal use. Rooke (1990 ) has suggested reshelving counts best measure non-usage. Several schemes have been devised to mark books or journals in such a way that a small piece of paper or thread is disturbed during patron use. For unused journals, the marker will remain undisturbed.

User surveys are another method used to determine which are the most valuable journals. Faculty may be asked to rate a list of journals or to list their favorite journals from memory. Studies that have asked faculty to list the most important journals in their field have generally shown a low correlation to actual use, although the reason for the variation between the two methods is not known. One variation on the survey method is to place a questionnaire with each issue or bound volume and ask users to put a check on the sheet whenever they use the journal. This method of self-reporting use requires little staff time or effort, but again results may not be very reliable.

Citation analysis also has pluses and minuses as a measure of journal use (Peritz,1992). Some citations can be frivolous or negative, but the majority probably reflect a genuine interest in the subject matter of the cited book or journal (Egghe and Rousseau,1990). However, citation analysis is tedious and time consuming without the citation indexes as aids, and if faculty members publish in journals that are not covered by the citation indexing service, their citations may be missed. One fairly serious drawback is the lag time between when an article is published, when it is cited, and when the citation is incorporated into a citation index. A new journal may appear to be of little interest because of the time factor, emerging fields of research may be underrepresented, or the interests of newer faculty overlooked. Citation analysis primarily reflects the journal use of faculty members and, to some extent graduate students, rather than undergraduates. There are some publications such as *Scientific American* , *Science* and *Nature* that are popular and widely read, but are not cited in proportion to their use.

Materials and Methods

In the journal use study, usage was surveyed at three different branch libraries of the University of Nebraska during the spring semester of 1996. Three different methods were used: circulation counts of bound volumes, reshelving counts of current periodicals, and citation analysis. The study included 282 business journals at Love, the main library; 127 periodicals in the Music Library and 349 journals in Veterinary and Biomedical Science (VBMS) at C.Y. Thompson (CYT), the agricultural library. Faculty from the VBMS Department, the College of Business Administration, and the School of Music were included in the citation analysis. Two other measures were used at CYT: a reshelving count for bound periodicals and a user survey of current periodicals. The different measures were carried out for varying amounts of time because of logistics problems, but the time span over all three locations covered the busiest time period for the library during the semester and a few weeks between the semesters when most undergraduate students were away from campus.

For the current reshelving counts, student workers were given a list of the journals to be included in the study and asked to put a check mark by the title each time an issue of the journal was reshelved. In addition, circulation data for bound journals was obtained from the computerized records which dated back to 1990. Circulation counts for each volume from 1990 through the most current bound volume within a title were totaled. For the citation analysis, *Science Citation Index* (SCI), *AGRICOLA*, *MEDLINE*, and *Biological and Agricultural Index* were searched for articles authored by the VBMS faculty. For the business faculty the source of citation information was *Social Science Citation Index* (SSCI), *ABI/INFORM*, and *Business Periodicals Index*. For the Music faculty, *UnCover*,

*Arts and Humanities Citation Index* (AHCI), and the *Music Index* were searched. The number of citations in each cited journal was tallied either from the list generated by the citation indexes or from the original articles for those faculty publications in journals not included in SCI, AHCI, or SSCI.

For the bound journal reshelving counts at CYT, small slips of paper with the title of the journal were put in each bound volume of the titles included in the study. The slips, placed in volumes back to 1990, were small enough to easily slip out of the volumes if they were removed from the shelf and opened. Student workers were also requested to remove any remaining slips from volumes they reshelved. The titles of each journal volume from the removed or missing slips were tallied and slips were returned to the bound issues. Volumes were checked for missing slips daily for the most popular titles and less often for seldom used titles.

For the current issue user survey at CYT, patrons were asked to list the date they used the journal, their department or major, and whether they were faculty/staff, graduate students, or undergraduates. A survey was placed in the front of each issue of the selected titles. Data were recorded weekly and a notation made of any missing survey sheets.

## Results

Results from the usage studies are shown in Table I. The numbers of titles included varies because some journals are discarded rather than bound and a few titles are bound when received.

Table I. Average journal uses per title for selected journals at UNL Libraries as determined by three different methods

| | reshelving (no. of titles) | citations (no. of titles) | circulation (no. of titles) |
|---|---|---|---|
| Business | 6.35 (281) | 2.26 (282) | 13.81 (227) |
| VBMS | 4.26 (349) | 7.03 (350) | 8.55 (331) |
| Music | 2.53 (128) | 0.53(129) | 4.51 (116) |

Both the average reshelving counts and circulation counts were highest for the business journals. The average number of citations, however, were highest for the VBMS journals. Although the business faculty published a similar number of papers, the citations they made were often to journals that fell outside of the call number range included in the study. Besides journals in economics, the business faculty often cited journals in psychology or other fields. Use of the business journals at Love was higher both for the current journals as measured by reshelving in the current periodicals area and for the bound journals as measured by circulation statistics than at either of the other libraries.

Usage of the music journals was light by any measure. This result is not unexpected because publication is not a major indication of productivity for faculty in the performing arts, and those faculty who publish often write books rather than articles .

At CYT current issue use was measured by taking reshelving counts and also by asking patrons to fill out a survey form (Table II). Survey responses were almost always lower than the reshelving counts indicating that not all patrons filled

out the forms. However, for individual titles survey responses were sometimes higher than reshelving counts so, at least in some cases, these two measures were looking at different kinds of uses. Faculty and staff members sometimes were observed leafing through current issues and filling out the forms, then returning the issues to the shelf. When they found titles of articles that were relevant to them, they would either copy them or take them to a seating area to read.

Table II. Reshelving counts, survey responses, and bound journal reshelving counts at C. Y. Thompson library and current journal reshelving counts for business journals at Love Library and for music journals at the Music Library.

| week | CYT-VBMS current | CYT-VBMS current survey | CYT-VBMS bound | Love-business current | Music current |
|---|---|---|---|---|---|
| 1 | 144 | 81 | | | |
| 2 | 142 | 105 | | | |
| 3 | 114 | 71 | | | |
| 4 | 99 | 62 | | | 131 |
| 5 | 125 | 111 | | 389 | |
| 6 | 279 | 109 | 119 | 427 | |
| 7 | 127 | 105 | 241 | 404 | |
| 8 | 73 | 73 | 172 | 195 | 124 |
| 9 | 115 | 77 | 176 | 199 | |
| 10 | 93 | 91 | 115 | 101 | |
| 11 | 175 | 95 | 241 | 78 | 57 |
| total | 1486 | 980 | 1064 | 1793 | 312 |

Counts for bound journal usage were made between week six and week eleven of the study at CYT. Bound journal usage during this time was higher than current periodical use measured by surveys or reshelving. Bound journal reshelving counts were higher by far than circulation counts. The results reported here include reshelving counts for bound journals for a six-week period, while circulation counts include all check-outs since 1990 when automated records began.

There were two peak times for use counts at CYT, one around week six-seven and another at week eleven. The first peak probably corresponds to the time when student term papers are generally due. The second peak at week eleven occurred after the end of the semester and before the summer session started. Since there were few undergraduates on campus then, most uses were probably made by graduate students, faculty, and staff. Faculty and graduate students may have been taking advantage of breaks in teaching and class duties to do background work for their research. For the business journals at Love, there was only one peak use time. That fell around week six-seven also, but uses then fell steadily until the end of the study. This would suggest that faculty were not heavy users of the business journals included, but undergraduates were. One difference between the VBMS and business departments at UNL is that there are a large number of undergraduate business majors. In comparison, VBMS is primarily a research department with few undergraduates. There is no veterinary school at UNL and clinical work is not emphasized. Most students are working at a graduate level and faculty emphasize biomedical research. At the Music Library counts were collected every four weeks throughout the time period and it appeared that counts fell off after the end of the semester there as well.

Correlations among the different usage measures were generally significant (Table III). The lowest correlations were between current journal reshelving counts and citations. These correlations were not significant for the music or business journals and were significant but low for the veterinary and biomedical science journals. Citation count correlations to bound journal usage measures were also relatively low. It would seem that two different ways of using journals were involved here. Possibly current journals were used for browsing or for keeping up

with events in the discipline as opposed to reading for background or methodology applicable to a problem. Another source of variation between the citation analysis counts and other measures was that journals in the library could be used by members of any department. Some core journals in other disciplines would occasionally be cited by the faculty in the departments studied. If the citation analysis could have included all departments and all journals, correlations may have been higher.

Another source of variation was noticed for the most important journals in a discipline. For example, the *American Journal of Veterinary Research* had 274 citations, but no current issue reshelving counts. Most VBMS faculty probably have their own subscription to this journal as part of their membership in the society and copies would be readily available in the department reading room for graduate students.

Table III. Correlations among journal use measures for the selected titles at the three UNL libraries included in the study: retot = current issue reshelving counts, cits = number of faculty citations, circ = number of circulations for bound journals, surtot = survey responses, bdtot = reshelving counts for bound journals. * = significant at the 5% level, ** = significant at the 1% level.

| | VBMS | BUS | MUSIC |
|---|---|---|---|
| rot:cits | .27** | .04 | .02 |
| retot:circ | .54** | .56** | .22* |
| cits:circ | .39** | .24** | .34** |
| retot:surtot | .89** | | |
| retot:bdtot | .68** | | |
| surtot:bdtot | .58** | | |
| surtot:cits | .31** | | |
| surtot:circ | .49** | | |
| bdtot:cits | .42** | | |
| bdtot:circ | .70** | | |

The current journal reshelving count correlation to circulation at the music library was only marginally significant, but all other correlations were highly significant. As in previous studies, some correlations, although significant, were not very high. The highest correlations were between the survey and reshelving counts for the current periodicals and between the bound journals and circulation counts for bound journals at CYT. The correlation between in-library use of bound journals and circulation counts is high enough so that circulation data could be used with some confidence to determine whether a journal should be retained in bound form or to contribute meaningful information to cancellation decisions. Even though survey totals were lower than reshelving totals there is enough

agreement between these two counts to rely on survey information alone at least at CYT. The high correlations would need to be confirmed at the other branch libraries. Correlations between measures of current journal use and bound journal use were intermediate. Either citation analysis or in-library journal use measures alone could give a distorted picture of journal value to users. Citation analysis combined with one other measure should be adequate, taking into consideration time and energy limitations. Professional judgment of both faculty and librarians should also be taken into account since there are certain exceptions to use patterns.

At all three sites there were large percentages of journals receiving no uses by any one measure. However, when current usage, citation analysis, and circulation were all taken into account, only 40 VBMS journals, 26 music journals, and 29 business periodicals received no usage during the time periods studied. At all three libraries, there were a few heavily used titles, generally journals such as *Business Week*, *Billboard* , or *Science* that had appeal to a wide range of readers. These journals did not necessarily receive a large number of citations from faculty.

## Discussion

Although most correlations among journal use measures were significant, they were not high enough in most cases to rely upon any one as the sole measure of journal popularity with confidence. The exceptions were correlations between bound journal circulations and bound journal reshelving at CYT and between reshelving counts and survey counts for current periodicals also at CYT. It is difficult to get bound journal reshelving counts at a large library. Results from this study suggest that circulation counts may be an acceptable alternative method of measuring retrospective journal use. Although circulation counts underestimate

bound journal usage, they give an indication of relative use among the journals. Reliability of survey results at other libraries at UNL would need to be confirmed. Especially at large libraries with high traffic, surveys may be less likely to be filled out or may be more easily misplaced.

Citation analysis can be used to identify core journals for a department, but results have to be used with caution in determining the value of a journal to the university as a whole. Because there were exceptions to the correlations, it is important for librarians to continue to use professional judgment in interpreting the data for selecting and deselecting journals and to consult with faculty. Low journal usage for many titles suggests that professional judgment needs to be supplemented by more objective measures, and use studies provide a rationale to justify subscription decisions.

The low number of titles with no usage means that it will be difficult to cancel subscriptions without limiting patron access to needed journals. Providing alternative access through full-text electronic publications or document delivery services will be important in maintaining customer service. It should be noted, however, that at least some of the titles with low usage are received as gifts or exchanges. Although there is some cost in storing and maintaining these titles, there is not a subscription cost. In conclusion, this study indicates that journal usage measures can provide important information to supplement, confirm, or cause questioning of more subjective judgments of the value of a journal subscription to users. They do require considerable staff time and commitment and need to be done periodically as user needs change over time. Hopefully, in the near future, on-line monitoring of patron access to title records, or similar measures that can be automated, will become available.

## COMPARISONS OF JOURNAL INDEXES

### Background

*Current Contents* was the baseline used for the comparison of journals listed in selected current awareness databases. *Current Contents* is a table-of-contents database produced by the Institute for Scientific Information, commonly known as ISI. It provides complete bibliographic data for the 7000 journals and the monographs it covers. Unlike most databases, *Current Contents* includes indexing for not only journal articles but also editorials, reviews, corrections, commentaries, meeting abstracts, and letters to the editor.

*Current Contents* is available in a variety of formats: print, diskette, CD-ROM, and magnetic tape. Various options are available depending on the format and price. However, all formats are published or updated on a weekly basis, index the same journals, and provide identical bibliographic data.

Seven editions of *Current Contents* are available. These include: Agriculture, Biology & Environmental Sciences; Arts & Humanities; Clinical Medicine; Engineering, Computing & Technology; Life Sciences; Physical, Chemical & Earth Sciences; and Social & Behavioral Sciences. Cost varies somewhat according to edition and format.

The first study used the January 6, 1997 Life Sciences edition of *Current Contents* as a basis for comparison. The Life Sciences edition covers more than 1370 journals from a broad range of disciplines. Categories include periodicals in fields such as medical research, biochemistry, cell & developmental biology, nutrition, and pharmacology. A description of each category is available via the

*Current Contents* web page (Institute for Scientific Information, Scope Notes, 1997).

*UnCover* was one of the databases studied in the two comparisons of current awareness indexes. In contrast to *Current Contents*, *UnCover* is both an on-line periodical article delivery service and a current awareness alerting service. *UnCover* indexes approximately 17,000 multidisciplinary journals. Although *UnCover* does not contain abstracts, it does contain brief descriptive information.

The second current awareness database contrasted with *Current Contents* is *ContentsFirst* produced by OCLC, the Online Computer Library Center, Inc. *ContentsFirst* is one of more than 60 databases available through *FirstSearch*. *ContentsFirst* indexes more than 13,000 business, humanities, science, and social science journals.

Journal titles indexed by *Current Contents: Life Sciences* were also checked in the *Medline* database. While not considered a current awareness database, *Medline* is somewhat similar in journal coverage to *Current Contents: Life Sciences*. According *to JAMA, The Journal of the American Medical Association, Medline* is the most widely used database of scientific literature in the world (Sikkorski and Peters, 1997).

*Medline*, produced by the National Library of Medicine, indexes approximately 3800 biomedical journals published internationally. Many of the articles listed in *Medline* contain abstracts. Unlike other databases, *Medline* contains citations dating back to 1966.

In addition to the comparison of journal titles indexed in the aforementioned databases, other data were collected during the course of this study. A check was made of the titles indexed in *Current Contents: Life Sciences*

that are located at the University of Nebraska-Lincoln (UNL). Both active and inactive serial titles were noted as well as the location of these titles. Also, serial titles listed in *Current Contents: Life Sciences* were checked in the catalog of the University of Nebraska Medical Center (UNMC) to determine if an active subscription was available.

In order to compare the coverage of agricultural journals in the table of contents services, a list of almost 2000 titles was compiled from *Current Contents* (CC), *Agricultural and Biological Index*, and *AGRICOLA*. The CC list includes all titles, including series covered, published in the January 1,1996 issue and any updates through June 1996. The *AGRICOLA* coverage was from the "List of Journals Indexed in AGRICOLA 1996". *AGRICOLA* covers some medical, economic, and nutrition literature and other editions of CC were checked for those titles so that a fair comparison could be made. The most current list available for *Agricultural and Biological Index* was 1992. This list is not comprehensive, but provides a fairly good coverage of the domestic literature and key foreign publications.

## Results

There was significant overlap between the journal titles listed in *Current Contents: Life Sciences, UnCover, ContentsFirst* and *Medline*. 83.5% of *Current Contents: Life Sciences* titles were also indexed in *Medline*; 83.8% of the titles were indexed in *UnCover*; and 87.5% of the titles were indexed in *ContentsFirst*.

UNL had an active subscription to 47% of titles indexed in *Current Contents: Life Sciences* while UNMC owned 45% of these titles. 24% of the Life Sciences titles were owned by both libraries. UNMC alone owned 21% of the titles while UNL alone owned 23% of the titles.

Additional findings determined that UNL owned 719 active subscriptions to the Life Sciences titles. CYT held 332 subscriptions; Biological Sciences Library held 227; Chemistry Library held 87 subscriptions; Love Library held 58 subscriptions; and other libraries at UNL owned the remaining 15 subscriptions. Numbers of duplicate and inactive titles at UNL are shown in Table IV.

Table IV. Inactive and Duplicate Subscriptions to *Current Contents Life Sciences* Titles in UNL Libraries

| | |
|---|---|
| Total inactive *Current Contents: Life Sciences* titles (includes duplicate subscriptions) | 231 |
| Inactive copy only (no active subscription) | 138 |
| Total active duplicate subscriptions (2 or more UNL libraries have active subscriptions) | 76 |

There was also a great deal of overlap for all three of the table-of-contents services for the agricultural sciences (Table V). Of the 978 titles covered by CC, 744 or 76% of them were also covered by *ContentsFirst*. Eight hundred (82%) were also included in *UnCover*. There were 98 titles covered only by CC. About half of these were titles from countries other than the US. *ContentsFirst* and *UnCover* had 973 titles in common. Of the *ContentsFirst* titles, 88% were covered

by *UnCover* and 80% of the *UnCover* titles were also included in *ContentsFirst*. There were 48 titles covered only by *ContentsFirst* and 107 covered only by *Uncover*. Many of the titles unique to *UnCover* were trade publications or more popular and general publications.

Table V. Number of titles of agricultural journals covered by *UnCover* (UNC), *Current Contents* (CC), and *ContentsFirst* (CF).
All = coverage of titles by all three services
CC and UNC = covered by both *Current Contents* and *UnCover*
CF and UNC = coverage by both *ContentsFirst* and *UnCover*

| Table of Contents Service | Number of Titles |
|---|---|
| All | 667 |
| UnCover only | 107 |
| CC and UNC | 127 |
| CC only | 98 |
| CF only | 48 |
| CF and UNC | 124 |

The titles that were unique to the services were generally the more peripheral literature. All three of the services covered the core literature reasonably well and the decision on which service or services to purchase would need to take into account other factors such as how soon titles are indexed, ease of use, search capability, pricing, and coverage of other disciplines.

A comparison of the *AGRICOLA* and *Agricultural and Biological Index* abstracting services points out the difference in size of the two databases.

*AGRICOLA* covered 1220 unique titles, while *Agricultural and Biological Index* had only 82 unique titles. There were 145 titles covered by both services

Discussion

The findings from this study are relevant to discussions on shrinking serial budgets and changing formats. Given the high overlap of *Current Contents: Life Sciences* titles with *UnCover*, *ContentsFirst*, and *Medline* (83.5% to 87.5%), do the Libraries need all four of these databases? This investigation did not include journals indexed in *UnCover*, *ContentsFirst*, and *Medline* which were not included in the *Current Contents: Life Sciences* edition. Unique features of each database would also need to be studied as would cost, ease of access to the database, or other factors.

As journal cancellations are mandated in an effort to save money, the overlap of titles between UNL and UNMC might also be considered. Both schools owned 24% of the titles in the Life Sciences edition. Perhaps a cooperative agreement between UNL and UNMC to refrain from cancelling unique active subscriptions might be discussed. (Only UNL held an active subscription to 23% of the *Current Contents* titles while only UNMC owned 21% of the titles.) Although the schools are located fifty miles apart, photocopied journal articles are usually delivered in a timely manner.

In the next journal cancellation project, the University of Nebraska-Lincoln will again need to consider duplicate subscriptions within Love Library and the branch libraries. Some duplicate subscriptions are necessary and even desirable. Faculty on East Campus who use C.Y. Thompson Library as well as Biological Sciences faculty have somewhat similar research interests and, hence, require

somewhat the same core journal titles. It should also be noted that C.Y. Thompson Library is located on East Campus, several miles from the other libraries which are on the main campus. Although there is delivery service between the libraries twice daily, faculty and students much prefer immediate access to journal literature.

## CONCLUSIONS

The major ongoing questions for librarians is: What is the best way to provide access to the most journals? Library ownership of journals is the traditional way to provide access, and the preferred way for the users. Interlibrary loan and document delivery services have a long history of increasingly good service, that is, the service is inexpensive for the patron and relatively quick. A newer approach that is popular with patrons is to provide access via full-text on-line databases. Knowing the popularity of individual journals and having an idea of the titles covered by indexes enables a librarian to determine which method of access to use in this time of shrinking budgets and changing formats.

ACKNOWLEDGMENTS

We would like to thank Tracy Bicknell-Holmes for providing the list of business faculty publications, Deb Pearson and Jon Keene and their student helpers for doing the reshelving counts at Love Library, and also the staff and students at the Music Library and C.Y. Thompson for their help in doing this study.

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